NOVA SCOTIA
Department of Health

HEPATITIS C

Surveillance Report
2004

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Prepared by: Office of the Chief Medical Officer of Health
Nova Scotia Department of Health
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Introduction

Hepatitis C is a viral infection caused by the Hepatitis C virus (HCV). Surveillance of Hepatitis C infection in Nova Scotia relies on the reporting of positive cases by physicians and clinical laboratories and on the follow-up of positive cases by public health staff. Hepatitis C positive individuals are also identified and reported by Canadian Blood Services (CBS).

Laboratory results and risk factor information acquired through public health follow-up of positive cases are forwarded to the Office of the Chief Medical Officer of Health, where the data is maintained on an ACCESS database for surveillance purposes. Aggregate data for Hepatitis C is forwarded to the Centre for Infectious Disease Prevention and Control (CIDPC), Public Health Agency of Canada in Ottawa. This report provides a summary of reported cases of Hepatitis C in Nova Scotia between 1995 and 2004.

Case Definition for Hepatitis C

According to the National Surveillance Case Definition for Hepatitis C[1], a confirmed case is characterized by laboratory confirmation of infection with/without symptoms if:

> < 1 year of age[a]: the Hepatitis C virus RNA PCR[b] is positive regardless of the result of testing for antibody to the virus (anti-HCV)[c].
>
> > 1 year of age: the individual is anti-HCV positive[d] or Hepatitis C virus RNA PCR positive[e], if anti-HCV negative.

NB: The following should be noted:

a) Cord blood should not be used due to contamination from maternal blood.
b) Optimum time following birth for HCV RNA PCR testing undefined; testing at 4-6 weeks and/or at 6 months to 1 year recommended.
c) HCV antibody testing should not be done in infants <1 year due to detectable levels of maternal antibody. If antibody testing performed and found to be reactive at 1 year of age, PCR testing should be done to confirm viremia and rule out presence of maternal antibody.
d) Confirmation of positive tests should be done using dual EIA testing or immunoblot/PCR based testing.
e) PCR testing should be done only in anti-HCV negative persons when clinically indicated.

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[1]Case Definitions for Diseases Under National Surveillance 2000. Advisory Committee on Epidemiology and Division of Disease Surveillance, Bureau of Infectious Diseases, Laboratory Centre for Disease Control, Health Protection Branch, Health Canada. Minister of Public Works and Government Services, 2000. Cat. No. H49-141/2000.

Limitations

Reporting of Hepatitis C

HCV Testing
The number of HCV positive reports describes those who have been tested and diagnosed as HCV positive but is not representative of all those living with HCV (prevalence) or those who are newly infected (incidence). The peak noted in 1997 is probably a reflection of increased testing through the provincial targeted programs and the resultant diagnosis of an increased number of new cases from the pool of prevalent cases.

Out of Province Testing:
Individuals who may reside in Nova Scotia, but have previously tested positive outside of the province, will not be reported here and therefore do not appear in Nova Scotia provincial statistics (cases are attributed to the province where the initial positive diagnosis was made and where the client resided).

Reporting Delay and Lost to Follow-Up:
There may be a delay in reporting or absence of risk factor information if public health has difficulty or is unable to locate a Hepatitis C infected individual. Further, individuals (if located) may be unwilling to provide risk factor information.

Risk Factor Information:
Multiple risk factors may be reported for a given individual. The reporting of risk factor information does not imply causation.

Hepatitis C Surveillance in Nova Scotia

Between 1995 and 2004, 2,993 cases of Hepatitis C were reported in Nova Scotia. The rapid increase in the number of reported new cases may reflect the impact of programs implemented in Nova Scotia in 1997 related to Hepatitis C and the blood supply. Since 1997, the number of reported new cases has continued to decline (Table 1, Figure 1). Sixty-eight percent (68%) of cases reported over this 10-year period were diagnosed in males and 31% in females (Table 2, Figure 2) District Health Authorities 7 and 8 (Eastern) had the highest age-standardized rate of positive test reports in 2004 at 30 per 100,000 population (Table 3, Figure 3).

In 2004, 77% of male and 82% of reported female cases of Hepatitis C were 30 years of age or older. The smallest number of cases (2%) were reported for those <20 years of age. The greatest number of cases (74) were reported for males 40 to 59 years of age (Table 4).

Sixty percent (60%) of reported cases between 1995 and 2004 had follow-up risk factor information provided. It should be emphasized that reporting a risk factor does not imply causation of infection and further, more than one risk factor may be reported for a given individual. Of the 1,808 cases with risk factor information provided, injection drug use (IDU) was identified as a risk factor in 59%, receipt of tattoos in 36%, blood transfusion in 26% and sharing needles in 32% of cases (Table 5). Selected risk factors have been graphically displayed over time (Figures 4–7). Of note, is the apparent increase over time in those reporting IDU and the apparent decrease over time in those reporting blood transfusion as risk factors. Sexual risk factors were not included in this analysis.

Table 1. Number of Hepatitis C Positive Test Reports, Nova Scotia, by Year, 1995-2004

Year*	Number of Reported Positive Tests
1995	148
1996	339
1997	513
1998	452
1999	326
2000	279
2001	194
2002	257
2003	249
2004	236
Total	**2993**

*23 cases – no year provided

Figure 1. Number of Hepatitis C Positive Test Reports, Nova Scotia, by Year, 1995-2004

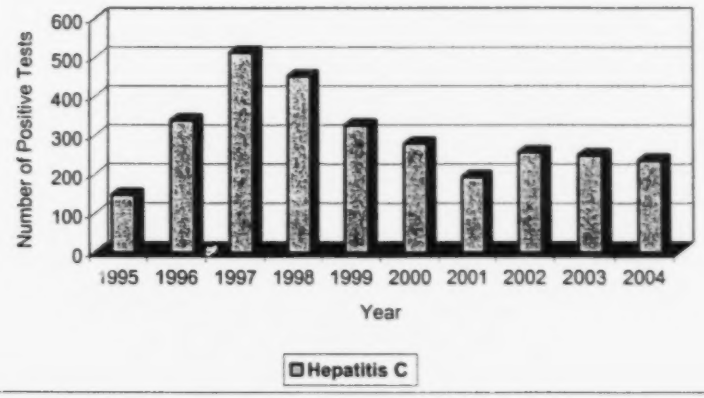

Table 2. Number of Hepatitis C Positive Test Reports, Nova Scotia, by Sex, 1995-2004

Year	Male	Female	Not Provided	Unknown	Total
	Cases	Cases	Cases	Cases	Cases
1995	94	52	2	-	148
1996	223	114	2	-	339
1997	351	160	2	-	513
1998	300	146	6	-	452
1999	212	109	5	-	326
2000	194	79	6	-	279
2001	137	54	3	-	194
2002	184	72	0	1	257
2003	176	68	2	3	249
2004	159	71	6	-	236
Total	**2030**	**925**	**34**	**4**	**2993**

*23 cases in database – no year provided

Figure 2. Number of Hepatitis C Positive Test Reports, Nova Scotia, by Sex, 1995-2004

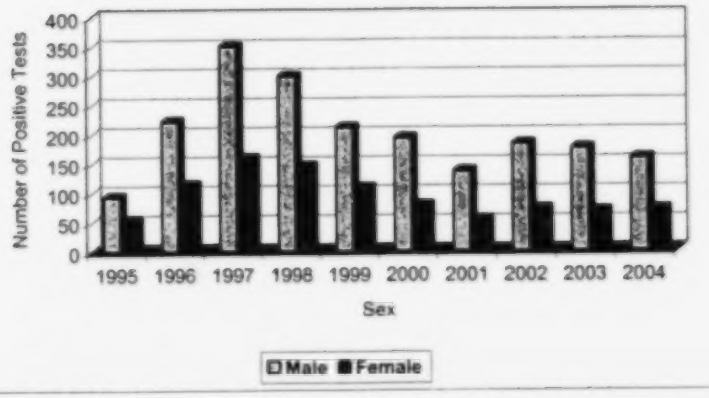

Table 3. Number, Crude, and Age-Standardized Rates of Hepatitis C Positive Test Reports, Nova Scotia, by District Health Authority, 2004

District Health Authority	Number of Reported Cases	Crude Rate*	Age-Standardized Rate**
DHA 1,2,3 (Western)	12	5.7	5.6
DHA 4,5,6 (Northern)	48	30.7	29.1
DHA 7,8 (Eastern)	55	29.9	30.5
DHA 9 (Capital)	111	28.6	27.2
Unknown	10	-	-
Total	236	25.0	24.1

*Crude rates based on 2001 census population of Nova Scotia

**Rates adjusted to the age distribution of the 2001 census population of Canada. Six cases age not specified and not included in calculation.

Figure 3. Age-Standardized Rates of Hepatitis C Positive Test Reports, Nova Scotia, by District Health Authority, 2004

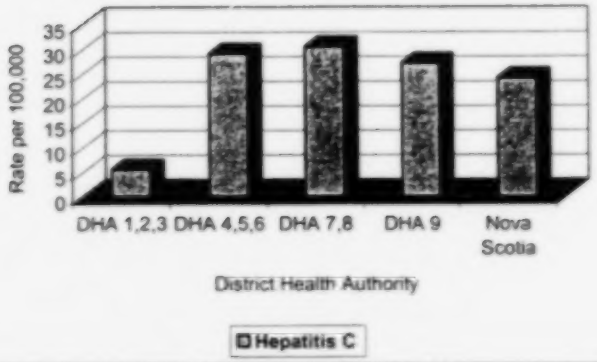

Table 4. Number of Hepatitis C Positive Test Reports and Age-Specific Rates, Nova Scotia, by Sex, 2004 (Rates per 100,000 based on 2001 census population of Nova Scotia)

	Number of Reported Cases - Male	Age-Specific Rate	Number of Reported Cases- Female	Age-Specific Rate	Number of Reported Cases – Unknown Sex	Total	Age-Specific Rate
	n	Rate	n	Rate	n	n	Rate
<1	-	-	-	-	-	-	-
1-4	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-
10-14	-	-	-	-	-	-	-
15-19	-	-	3	9.6	1	4	6.2
20-24	13	41.5	5	16.0	-	18	28.8
25-29	20	64.8	5	15.9	1	26	41.7
30-39	40	55.9	24	32.9	-	64	44.3
40-59	74	54.5	30	21.7	1	105	38.4
60+	9	12.3	4	4.2	-	13	7.8
Age Unknown	3	-	-	-	3	6	-
Total	**159**	**34.4**	**71**	**14.7**	**6**	**236**	**25.0**

Table 5. Percentage of Reported Risk Factors for Hepatitis C by Year of Positive Test, Nova Scotia, 1995-2004
(Percentages based on the number of diagnosed cases per year with reported risk factor information)

Year	Number of Cases with Risk Factor Information	Blood		Blood Products*		Dialysis		Household**		Acupuncture		Tattoo		Ear Piercing		Body Piercing		Electrolysis		Injection Drug Use		Percutaneous Puncture		Sharing Needles	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
1995	43	28	65.1	4	9.3	1	2.3	1	2.3	-	-	5	11.6	3	7.0	-	-	-	-	12	27.9	1	2.3	3	7.0
1996	233	95	40.8	8	3.4	3	1.3	18	7.7	18	7.7	84	36.0	93	39.9	4	1.7	-	-	124	53.2	14	6.0	74	31.7
1997	349	138	39.5	6	1.7	-	-	16	4.6	33	9.4	107	30.6	111	31.8	5	1.4	6	1.7	201	57.6	15	4.3	85	24.3
1998	293	79	27.0	3	1.0	3	1.0	21	7.2	20	6.8	105	35.8	111	37.9	7	2.4	2	0.7	184	62.8	20	6.8	51	17.4
1999	210	35	16.7	4	1.9	1	0.5	1	0.5	20	9.5	86	40.9	86	40.9	5	2.4	4	1.9	113	53.8	22	10.5	77	36.7
2000	195	29	14.9	-	-	-	-	-	-	25	12.8	66	33.8	56	28.7	5	2.6	3	1.5	103	52.8	16	8.2	60	30.8
2001	148	22	14.9	-	-	1	0.7	18	12.2	17	11.5	65	43.9	51	34.4	7	4.7	1	0.7	113	76.3	8	5.4	81	54.7
2002	99	13	13.1	-	-	-	-	39	39.4	10	10.1	50	50.5	38	38.4	7	7.1	-	-	67	67.7	11	11.1	44	44.4
2003	140	15	10.7	-	-	1	0.7	50	35.7	24	17.1	51	36.4	49	35.0	8	5.7	8	5.7	86	61.4	35	25.0	54	38.6
2004	98	10	10.2	-	-	-	-	3	3.1	17	17.3	32	32.6	25	25.5	14	14.3	-	-	61	62.2	3	3.1	47	47.9
Total	1808	464	25.7	25	1.4	10	0.5	167	9.2	184	10.2	651	36.0	623	34.4	62	3.4	24	1.3	1064	58.8	145	8.0	576	31.8

*Blood products refer to fractionated products or components of whole blood e.g. platelets, plasma, red blood cells
**Household refers to household contact

Figure 4. Percentage of Reported Cases of Hepatitis C with Risk Factor Information Reporting Injection Drug Use, Nova Scotia, 1995-2004

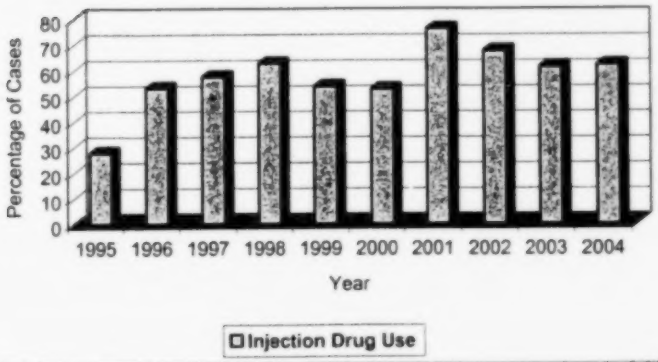

Figure 5. Percentage of Reported Cases of Hepatitis C with Risk Factor Information Reporting Sharing Needles, Nova Scotia, 1995-2004

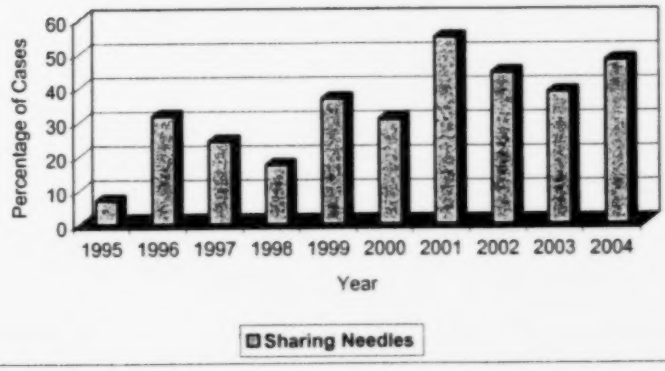

Figure 6. Percentage of Reported Cases of Hepatitis C with Risk Factor Information Reporting Blood Transfusions, Nova Scotia, 1995-2004

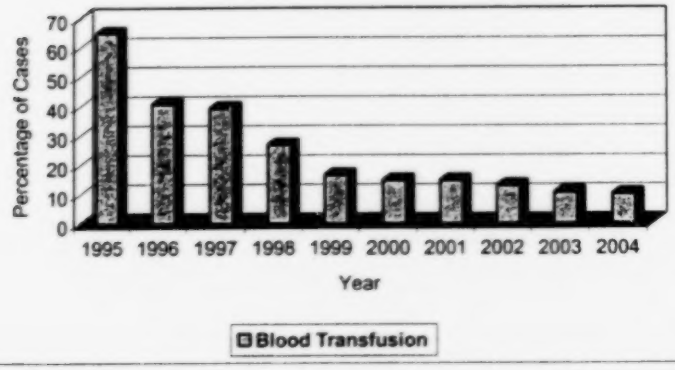

Figure 7. Percentage of Reported Cases of Hepatitis C with Risk Factor Information Reporting Tattoos, Nova Scotia, 1995-2004